

# LAND RECLAMATION COMMISSION

STATE OF MISSOURI

P.O. BOX 176

JEFFERSON CITY, MISSOURI 65102

573-751-4041

## Permit To Engage in Surface Mining

LAND RECLAMATION COMMISSION

ISSUES TO

UNIMIN CORPORATION

Pursuant to "The Land Reclamation Act," RSMo, 2001, and on conformity with the statements

In the application, a permit is hereby granted to engage in surface mining of

silica sand in the state of Missouri. The extent of the

Proposed mining operation(s) will be on 258 acres, more or less.

The locations of the operation(s) under this permit is/are as follows: Renewal

County	Section	Township	Range	Acres Renewed	Acres New	Total Acres	Site/Stream Name	Site Number
Jefferson	21, 22, 27, 28	41N	05E	258	0	258	Pevely Mine	0517

This permit may be suspended or revoked upon violation of any or all of the conditions set forth in "The Land Reclamation Act," RSMo. 2001, or in such rules and regulations as are promulgated pursuant thereto by the Land Reclamation Commission.

IN WITNESS WHEREOF I have hereunto set my hand this 4th day of March 2004



DIRECTOR OF STAFF  
Land Reclamation Commission

Permit No. 0525  
Effective Date 03/25/2004  
Expiration Date 03/24/2005



MISSOURI DEPARTMENT OF NATURAL RESOURCES  
LAND RECLAMATION COMMISSION

PERMIT RENEWAL FOR INDUSTRIAL MINERAL MINES

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P.O. BOX 178  
JEFFERSON CITY, MO 65102-0178

NAME OF CORPORATION, COMPANY, PARTNERSHIP OR INDIVIDUAL Unimin Corporation - Pevely Plant		DATE February 10, 2004	
ADDRESS 2968 Highway Z	CITY Pevely	STATE MO	ZIP CODE 63070
CONTACT PERSON Daniel Rowe		TELEPHONE NUMBER 636-479-3260	

FEES: COMPLETE SECTION I OR SECTION II

SECTION I. Fees: Open pit operators and those mining more than 5,000 tons of sand and/or gravel:

1. To compute the site fee complete the information below:

SITE NAME OR NUMBER (add a separate sheet for additional sites)	Mark each month that the site will be operated during the permit year	For sites operated less than six months per permit year pay \$150 For sites operated six months or more per permit year pay \$300
1. Pevely Mine	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$300
2.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
3.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
4.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
5.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
6.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
7.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
8.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
9.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$
10.	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	\$

TOTAL SITE FEE  $\rightarrow$  \$300

2. Acreage Fee \$5 X 258 number of acres bonded ..... \$1290

3. Annual Permit Fee..... \$500

4. Total Fee (Add totals from 1, 2 and 3)..... \$2,090

NOTE: If Total Fee exceeds \$2,500.00 then pay only ..... \$2,500

SECTION II. FEES: Sand or gravel operators mining less than 5,000 tons per year:

1. Annual Permit Fee..... \$300

SIGNATURE OF APPLICANT <i>Daniel C. Rowe</i>	TITLE <i>Plant mgr</i>	DATE <i>2/10/04</i>
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Appeared before me this 10 day of FEBRUARY, 2004,  
to me personally known, who executed the above as their free acts and deeds.

NOTARY PUBLIC EMBOSSEER SEAL  DEBRA L. BANKS Notary Public — Notary Seal STATE OF MISSOURI Jefferson County My Commission Expires: June 4, 2006	STATE OF <i>Missouri</i>	COUNTY (OR CITY OF ST. LOUIS) <i>Jefferson</i>
	SUBSCRIBED AND SWORN BEFORE ME, THIS <u>10th</u> DAY OF <u>February</u> , 2004	
	NOTARY PUBLIC SIGNATURE <i>Debra L. Banks</i> NOTARY PUBLIC NAME (TYPED OR PRINTED) Debra L Banks	MY COMMISSION EXPIRES 6-4-06

USE RUBBER STAMP IN CLEAR AREA BELOW.

FOR DEPARTMENT USE ONLY: APPROVED BY <i>[Signature]</i>	DATE APPROVED <i>3-2-04</i>	PERMIT NUMBER <i>0525</i>	EXPIRATION DATE <i>3-24-05</i>
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MISSOURI DEPARTMENT OF NATURAL RESOURCES  
LAND RECLAMATION COMMISSION  
**SITE INFORMATION FORM**

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To be completed for each separate area of disturbance associated with mining operations.			MISSOURI LAND RECLAMATION COMMISSION
SITE NAME OR NUMBER		PERMIT NUMBER	
Unimin Corporation's Pevely Mine		0525	
COMPANY NAME			
Unimin Corporation, 2968 Highway Z, Pevely, Missouri, 63070-2303			
COUNTY	1/4 SECTION	SECTION	
Jefferson	SW 1/4, SE 1/4	21, 22 & 27, & 28 <sup>4/15/98</sup> w/ D. Rowe (ND)	
TOWNSHIP	RANGE	ACRES	
41N	5E	258	
RIVER OR STREAM NAME (FOR IN-STREAM ACRES)			
MINERAL COMMODITY		ESTIMATED TONS/YEAR (FOR GRAVEL SITES)	
Silica Sand		greater than 5000	

NAME OF LANDOWNER (ATTACH LIST IF MORE THAN ONE)		
Unimin Corporation		
ADDRESS		
258 Elm Street		
CITY	STATE	ZIP CODE
New Canaan	CT	06840-5300
SOURCE OF RIGHT TO MINE (CHECK ONE):		DATE OF AGREEMENT
<input type="checkbox"/> MINERAL DEED <input checked="" type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE): _____		
<input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		

MINERAL RIGHTS OWNER (ATTACH LIST IF MORE THAN ONE)		
Unimin Corporation		
ADDRESS		
258 Elm Street		
CITY	STATE	ZIP CODE
New Canaan	CT	06840-5300
SOURCE OF RIGHT TO MINE (CHECK ONE):		DATE OF AGREEMENT
<input type="checkbox"/> MINERAL DEED <input checked="" type="checkbox"/> WARRANTY DEED <input type="checkbox"/> OTHER (DESCRIBE): _____		
<input type="checkbox"/> LEASE <input type="checkbox"/> VERBAL AGREEMENT		

**NOTE:** Each site must be shown on a map and be included in a public notice and an approved mine plan.

MISSOURI DEPARTMENT OF NATURAL RESOURCES  
LAND RECLAMATION COMMISSION  
MINE PLAN

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P.O. BOX 176  
JEFFERSON CITY, MO 65102

TYPE OF PLAN (CHECK ONE):

- ☐ SHORT TERM, FOR ONE PERMIT YEAR  
☒ LONG TERM, FOR PERIOD THROUGH DATE: 2002

MISSOURI LAND  
RECLAMATION COMMISSION

DESCRIPTION OF SITE PRIOR TO LAND RECLAMATION COMMISSION PERMITTING (BY APPLICANT OR PRIOR OPERATOR), INCLUDING SOIL, VEGETATION AND TOPOGRAPHY.

Prior to mining, Unimin Corporation's Pevely mine site was primarily an unmanaged wildlife habitat.

The topography at the Pevely site consists of valleys and ravines. Elevation varies from roughly 500 to 625 feet above mean sea level.

The vegetation consists of a mixture of meadows and forests. The meadows contain grasses, junipers and other brush. The forests are dominated by a mixture of hardwood trees, some of which are oak and sycamore.

The topsoil is generally less than one foot in depth, although locally it may be two or three feet thick. The soil is clay-rich.

OPERATION PLAN - 10 CSR 40-10.020(2)(D)1.

A. TOPSOIL

AVERAGE DEPTH OF TOPSOIL, PRIOR TO LAND RECLAMATION COMMISSION PERMITTING

less than 6 INCHES

IS TOPSOIL TO BE SOLD OR DISCARDED OFFSITE?

☐ YES OR ☒ NO

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL REMOVAL

The topsoil, where it is present, will be removed in the first phase of the stripping operations.

The topsoil will be removed with a dozer/scrapper or truck/loader and hauled to a temporary storage site or a permanent reclamation site.

DESCRIBE METHODS AND EQUIPMENT USED FOR TOPSOIL STORAGE AND PROTECTION

If the topsoil is not hauled directly to a replacement site from the stripped area, then temporary stockpiles will be created. These piles will be protected by water diversions and seeding.

Some of the clay-rich soil may be utilized in the construction of sedimentation pond embankments.

**B. SPOIL**

DESCRIBE METHODS AND LOCATION OF SPOIL PLACEMENT AND DISPOSAL

The spoils or waste rock consists primarily of limestone overburden from the pit, oversize rejects, and some plant tailings.

The overburden, where competent, will be drilled and blasted, then transported to a stockpile.

Plant tailings, oversize rejects, and remaining overburden, if any, will be incorporated as a cover with the waste rock to help serve as a root medium.

**C. ACID MATERIALS**

DESCRIBE METHODS AND EQUIPMENT USED FOR HANDLING ACID MATERIALS (IF NONE IS ANTICIPATED, WRITE "NONE" BELOW)

NONE

**D. PIT INFORMATION (GIVE ALL DIMENSIONS IN FEET)**

DESCRIBE LOCATION AND ORIENTATION OF PIT, IF NOT CLEAR ON SITE MAPS

The proposed five year mine plan outlines clearly the mining and overburden removal areas in the proposed sequence of mining from 1997 until 2002. *See attached maps which show pit on 4/1/2007, T7416-02*

A buffer in excess of fifty feet will be maintained adjacent to the property boundary and/or Highway Z.

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YES	NO
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<input type="checkbox"/>	<input checked="" type="checkbox"/>	Will any excavation be at or within fifty feet (50') of the right-of-way of any public road?
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<input type="checkbox"/>	<input checked="" type="checkbox"/>	Will any highwall consisting of unconsolidated materials be left within fifty feet of the right-of-way of any public road? (NOTE: For unconsolidated materials left in place, a slope of no more than forty degrees may start near the right of way, and in no case may the excavation be closer to the right of way than fifty feet or twenty-five feet plus one and one-half (1-1/2) times the depth of unconsolidated material, whichever is greater, unless a variance is granted by the Commission.)
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<input type="checkbox"/>	<input checked="" type="checkbox"/>	Will any excavation start at or within fifty feet (50') of any property line? (NOTE: If the answer is "yes", a safety barrier may be needed.)
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**RECLAMATION PLAN - 10 CSR 40-10. (2)(D)2.**
**A. REVEGETATION** (Attach additional sheets, if needed)

REVEGETATION MIX #1	PURPOSE OR LAND USE Wildlife	B. SEEDING OR PLANTING TIME spring
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DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING  
 Following topsoil replacement, the ground will be repaired and then seed will be distributed by one or more of the following methods: broadcasting, hand planting, or hydroseeding.  
 Plant types for both the spring and the fall season are listed below. Seeding grasses and legumes may occur either spring or fall; however, all trees and shrubs will be planted in the spring. Some tree/shrub species may be planted as seed (e.g. black locust). Tree and shrub mixes will depend on final site conditions (continued below)  
 Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients.  
 Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
<del>Tall Fescue</del> * 21/5/11 Switchgrass <i>disc. w/</i> Little bluestem <i>D. Blue</i> Oats <i>(ND)</i> <del>Crown Vetch</del> * Clover	20 15 5 50 10 5	Hackberry (D+W) Dogwood (D+W) Black Locust (D+W) Pin Oak (D+W) Green Ash (W) Bur Oak (D)	300 avg. Each utilized species will comprise at least 5 % of the total planting. At least five different woody species will be planted.
* Nov-1-2002 Modification Substitute Roundheaded bushclover and/or Partridge Pea for Crown Vetch Substitute Deer Tongue for Tall Fescue <i>C. Jamieson per T. Thorn (DNR)</i>			

REVEGETATION MIX #2	PURPOSE OR LAND USE Wildlife	B. SEEDING OR PLANTING TIME Fall
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DESCRIBE METHODS AND EQUIPMENT TO BE USED FOR SEEDING OR PLANTING (continued from above)  
 (e.g. Bur oak will be planted on well-drained upland sites (D); Pecan or Walnut will be planted in th moist lowlands (W). Trees and shrubs will be planted in irregular shaped patches with some open spaces to increase edge effect and, thus, habitat diversity.

Lime and fertilizer will be applied according to recommendations made, based on an analysis of soil texture and nutrients.  
 Mulch will be applied to all slopes exceeding 5:1.

SEEDED SPECIES	POUNDS/ACRE	TREE OR SHRUB SPECIES	STEMS/ACRE
<del>Tall Fescue</del> * Switchgrass Little Bluestem Rye * <del>Crown Vetch</del> Clover	20 15 5 45 10 5	Trees and shrubs will be planted in the spring. D= Dry W= Wet D+W= Dry and Wet	RECEIVED NOV 7 2002 MISSOURI LAND RECLAMATION COMMISSION
* Nov-1-2002 Modification Substitute Roundheaded bushclover and/or Partridge Pea for Crown Vetch Substitute Deer Tongue for Tall Fescue <i>C. Jamieson per T. Thorn (DNR)</i>			

ATTACH ADDITIONAL SHEETS FOR ADDITIONAL SEED MIXES.

## B. GRADING

### DESCRIBE PROPOSED RECLAIMED TOPOGRAPHY, INCLUDING SLOPES

The reclaimed topography will mirror the surrounding countryside. It will consist of gently sloping areas and some escarpments. Unconsolidated material will be graded such that it does not exceed a 3H:1V slope. Consolidated rock will be left as a vertical cliff. Maximum height is unlikely to exceed 50 feet. Overhanging material will be removed.

The topography will allow for natural surface drainage.

## C. DESCRIBE THE GENERAL SEQUENCE AND TIMING OF THE FOLLOWING ACTIVITIES

### GRADING

If grading is necessary to achieve final slope, it will occur at the completion of waste deposition activities. Where applicable, grading may also be used to distribute topsoil or other approved grading media. All grading will be complete within twelve months of permanent cessation of operations at this site.

### REPLACEMENT OF TOPSOIL

The topsoil will be recovered from stockpiles at the beginning of a favorable growing season and not later than twelve months after the expiration date of the permit under which the disturbance occurred.

### REVEGETATION

Revegetation will commence during a favorable growing season and immediately after application of the topsoil. Seeding and planting will take place within a twenty-four month period following the expiration of mining activities and/or the expiration of the mining permit.

### AVERAGE DEPTH OF REPLACED TOPSOIL (INCHES)

12' 6 inches

## D. USE OF LAND WHEN RECLAIMED

Estimate acreage of each land use below, after reclamation

### ESTIMATED ACRES:

Wildlife (forest or other habitat with livestock excluded)

252

Agricultural (pasture, cropland, and horticultural)

Development (residential, industrial, and recreational)

Water impoundments (for wildlife, agricultural, or development)

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6

By my signature, I attest to the following:

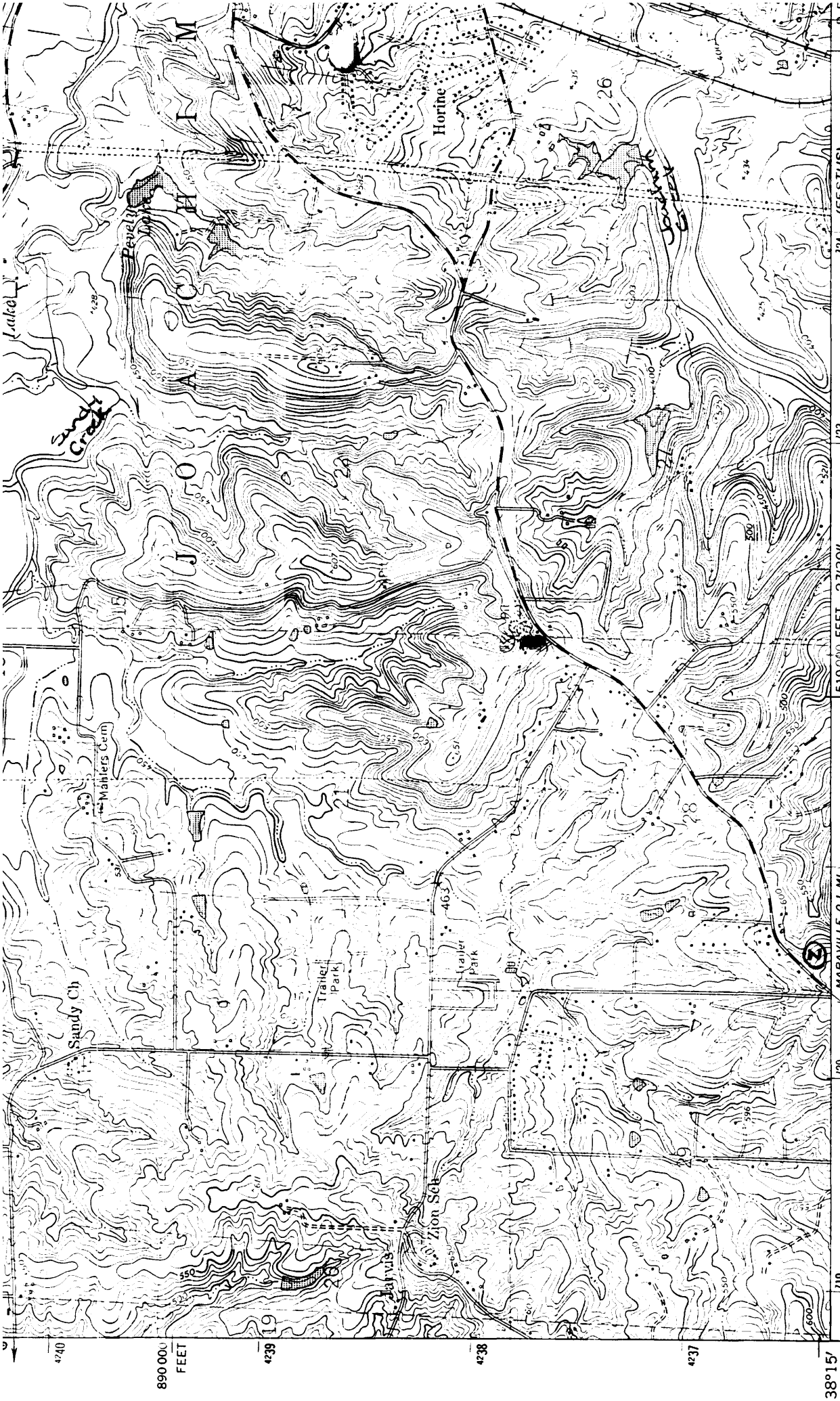
1. All statements made on this Mine Plan Form are correct, complete, and true, to the best of my knowledge.
2. I or the company I am authorized to represent intend(s) to mine in accordance with this Mine Plan Form, and in accordance with the Missouri Land Reclamation Act, Sections 444.760 through 444.789, RSMo (Supp. 1990), and all rules, regulations, orders, decisions and permits of the Missouri Land Reclamation Commission pertaining to my company's surface mining operations.
3. I have obtained the approval of all landowner's for all proposed post-reclamation land uses.
4. I have a valid agreement with all landowners which gives me the right to grant access to the Director of the Missouri Land Reclamation Commission and his authorized representatives, and I grant such access, and further where I have no such right, I have attached signed affidavits from the landowners, granting such access.

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RECLAMATION COMMISSION

SIGNATURE OF APPLICANT <i>Donald C. Rowe</i>		TITLE Plant Manager	DATE 2/26/98
NOTARY PUBLIC EMBOSSER SEAL	STATE MO	COUNTY (OR CITY OF ST. LOUIS) JEFF	
	SUBSCRIBED AND SWORN BEFORE ME, THIS 26 DAY OF FEB 19 98		USE RUBBER STAMP IN CLEAR AREA BELOW
	NOTARY PUBLIC SIGNATURE <i>Kim M. Henson</i>	MY COMMISSION EXPIRES 03-12-99	<b>KIM M. HENSON</b> Notary Public-Notary Seal STATE OF MISSOURI County of Jefferson, Missouri My Commission Expires: March 12, 1999
NOTARY PUBLIC NAME (TYPED OR PRINTED) Kim M Henson			
APPROVED BY (DIRECTOR'S REPRESENTATIVE) <i>William S. Graham</i>		DATE APPROVED 4-24-98	PERMIT NUMBER 0525

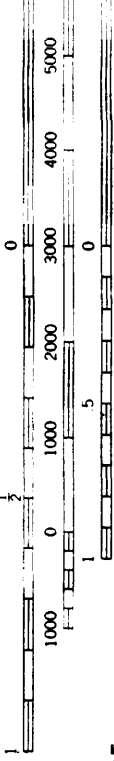




Maped by the Army Map Service  
Published for civil use by the Geological Survey

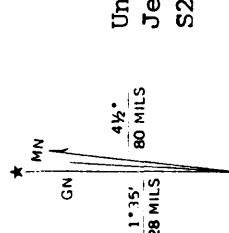
Control by USGS, USC&GS, and USCE  
Topography from aerial photographs by photogrammetric methods  
Aerial photographs taken 1952. Field check 1954  
Polyconic projection. 1927 North American datum  
10,000-foot grid based on Missouri coordinate system, east zone  
1000-meter Universal Transverse Mercator grid ticks, zone 15,  
shown in blue  
Dashed land lines indicate approximate locations

SCALE 1:24,000



CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Unimin #525  
Jefferson Co.  
S21,22,28 T41 R5E



UTM GRID AND 1974 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET  
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR R



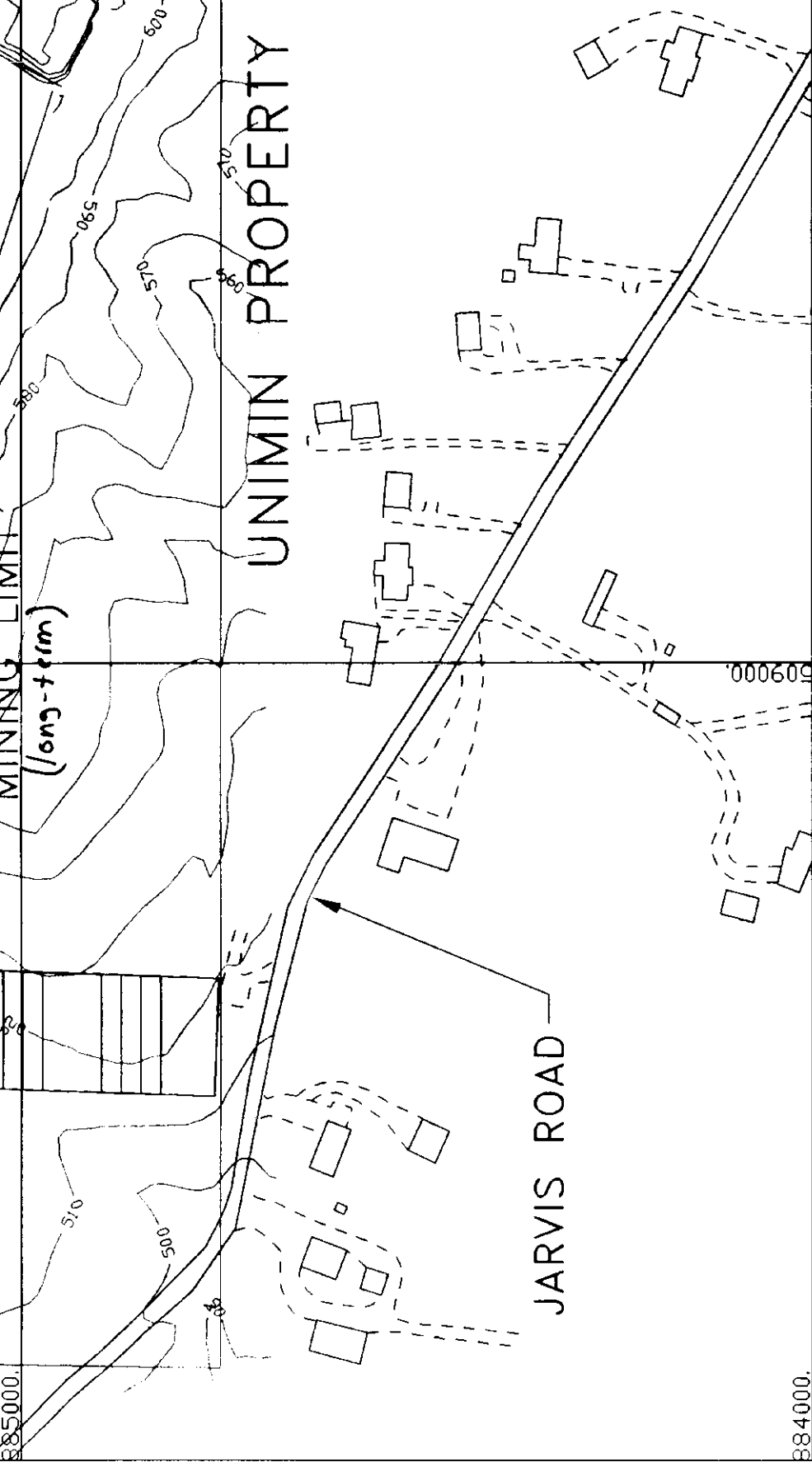
Jefferson County

S. 21, 22, 27, 28

T. 41N

R. 05E

**UN**



Jefferson County

S-21, 22, 27, 28

T-41N

R-05E

**UNIMIN**

Area to be reclaimed to  
Wild life - (252 acres) and  
water impoundment (6 acres)